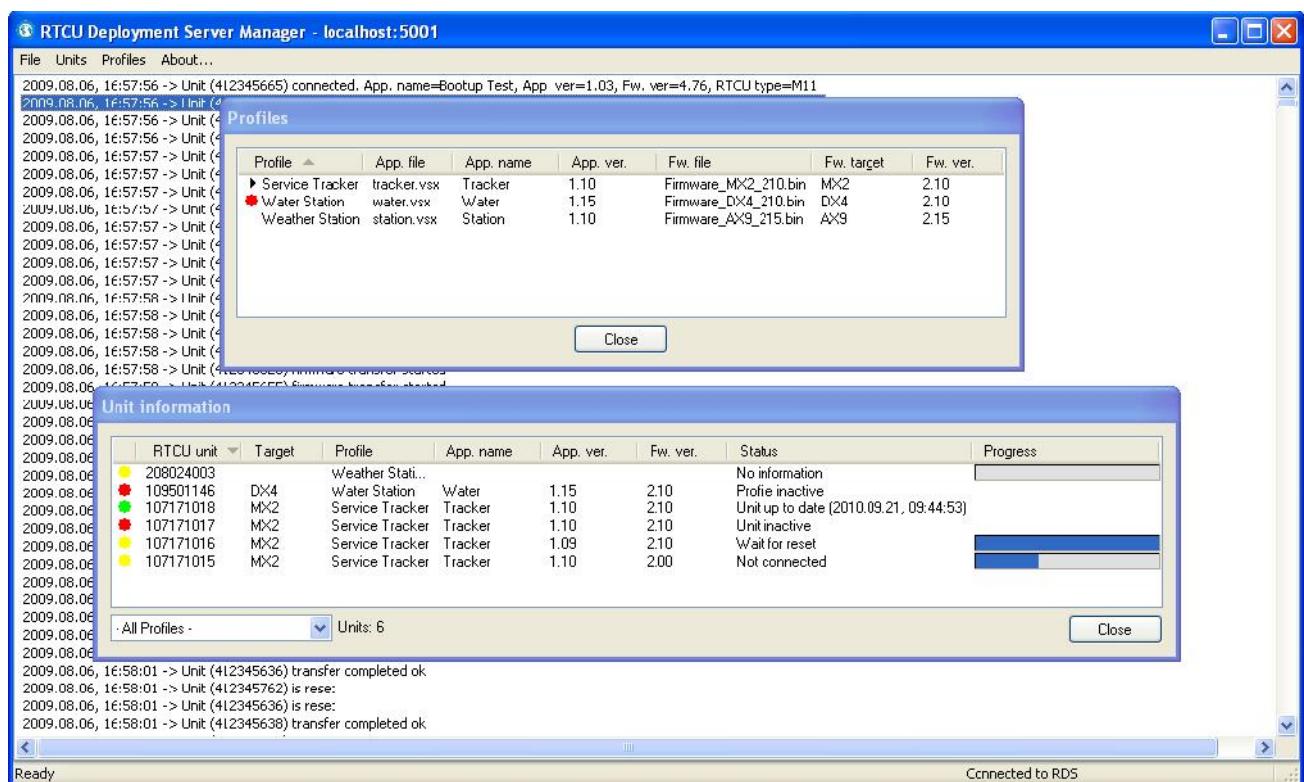


The Logic IO

RTCU Deployment Server (RDS)



User's Manual

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Introduction

This document describes the RTCU Deployment Server (RDS). The RTCU Deployment Server is a lightweight and easy-to-install solution that runs under most Microsoft Windows variants. The RDS is used to make the task of upgrading firmware and/or application in a number of RTCU units easier. The RDS also offers functionality to transfer user-defined files to the RTCU units. The RDS uses TCP/IP network to allow remote access to RTCU units connected to the RTCU Gateway 2. The RDS takes advantage of the background update available in the RTCU firmware for maximum flexibility.

Features:

- Uses the RTCU Gateway 2 to establish a connection to remote units.
- Runs as a Windows service for automatic start-up in server installations.
- Includes remote maintenance, diagnostic, and logging facilities.
- Upgrades firmware and application automatically according to user configuration.
- Upgrades can occur during full operation of the unit.
This unique feature minimises downtime and the impact on the user.
- Failed upgrade attempts will automatically be resumed at the point of interruption.
This unique feature will reduce the cost and time of upgrading.
- Can be either an automatic or application-driven decision when to switch over to the new application/firmware. All that is required to switch over to the new application/firmware is a reset of the unit which will only interrupt the operation for 10-20 seconds.
- Up to 200 simultaneous upgrade sessions.
- Supports applications that use VPL upgrade notifications.
- Support for automatic programming of new factory-delivered units.
- Scheduled upgrade.
- Support for upload of user-defined files to a unit.
- Comprehensive logging and status features.
- Import from and export to comma-delimited files.
- Support for RTCU X32 and NX32 Execution Architecture.
- Large Packet Support with increased performance and bandwidth.

System Requirements

Operating system:	Microsoft Windows 10 / 8 / 7 / Vista Microsoft 2003 / 2008 / 2010 / 2012 Server.
Memory (RAM):	Minimum 500 MB / Recommended: 1 GB. (Available for RDS).
Hard disk space:	Approx. 50MB @2000 units, 40MB @500 units.
Other:	Network card. TCP/IP network protocol. RTCU Gateway 2. Version 3.20 or later is recommended.

License

There are no limitations on the RDS itself, but the number of allowed clients will be enforced by the license policy of the RTCU Gateway 2.

The gateway can be used with up to 25 clients (RTCU units, the RDS, or PC software) in a trial version. However, if more clients are required, a license can be purchased from Logic IO (See the gateway manual for more information).

Note that the gateway only supports one RDS at a time. If more than one RDS tries to use the gateway at the same time, they will not work as intended.

RTCU Deployment Server API

All the functionality available in the RTCU Deployment Server Manager is available as an API for use in applications that require programmatic control of the RTCU Deployment Server.

For more information, please download the **RTCU Deployment Server API** package.

Installation and Setup

There are two installations for the RDS - “RTCU Deployment Server” and “RTCU Deployment Server Manager”.

RTCU Deployment Server

This installation package includes the server and the control panel.

To install, run:

RTCU Deployment Server (x86) V4.20.msi, or

RTCU Deployment Server (x64) V4.20.msi

This depends on whether the 32-bit or 64-bit version is preferred.

If a previous version of the RDS or UDS is already installed on the PC, it must be uninstalled before this new version of the RDS can be installed. The configuration and data of the previous version will be imported and used if present.

Warning

Installing the RTCU Deployment Server 64-bit on an existing UDS 32-bit installation requires manual copying of the existing data files.

The installation process requires administrator privileges.

RTCU Deployment Server Manager

This installation package includes the manager application and this PDF manual.

The manager is used to locally or remotely manage the RDS.

To install, run:

RTCU Deployment Server Manager (x86) V4.20.msi

or

RTCU Deployment Server Manager (x64) V4.20.msi

The version to run depends on whether the 32-bit or 64-bit version is preferred.

Using the RTCU Deployment Server.

First Time

The first time the RDS is started, there are a few steps that must be performed before it is ready for use.

1. An operational and accessible RTCU Gateway 2 is required.
Please obtain the following parameters from the RTCU Gateway 2:
IP address, port number, and key parameters. These are needed in step 2.
2. Configure the RDS. This is done with the Control Panel. See the Control Panel – Configuration chapter for more information.

First type the gateway parameters from step 1 in.

Then select the application path and the firmware path.

It is very important to get this right, because this is where the RDS receives the application and firmware files.

It is recommended to change the password for the RTCU Deployment Server Manager.

3. Start the RDS. This is done with the Control Panel. See the Control Panel – Status chapter for more information.

Press the “Start RDS” button. The RDS service is now started, and the RDS service information will change from “Stopped” to “Running”.

After a while the gateway information will change from “Not connected” to “Connected”. If the text does not change within a few minutes, the RDS cannot find the gateway. The gateway connection parameters might be wrong, or alternatively the network infrastructure is not configured to allow traffic to the gateway.

If the text in the status bar changes to “Unsupported”, the RDS is connected to the gateway but the gateway is an old version.

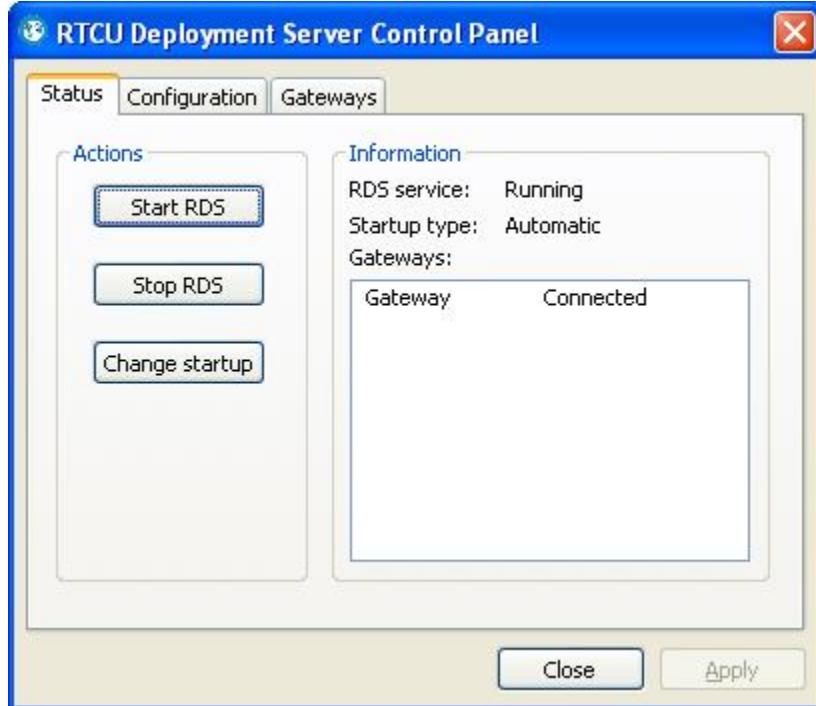
You are now ready to create profiles and units.

Control Panel

The Control Panel application is where the RDS service is managed.

Status

The status page is where the service status is monitored and changed.



The actions group contains an option for changing the status of the RDS service.

The actions supported are to start or stop the RDS service and to change the startup type.

The information group contains the status of the RDS service.

The items can have the following states:

RDS Service

Running	RDS service is started and running.
Stopping	RDS service is in the process of stopping.
Stopped	RDS service is not running.

Startup Type

Automatic	RDS service starts automatically with Windows.
Manual	RDS service must be started from the Control Panel.

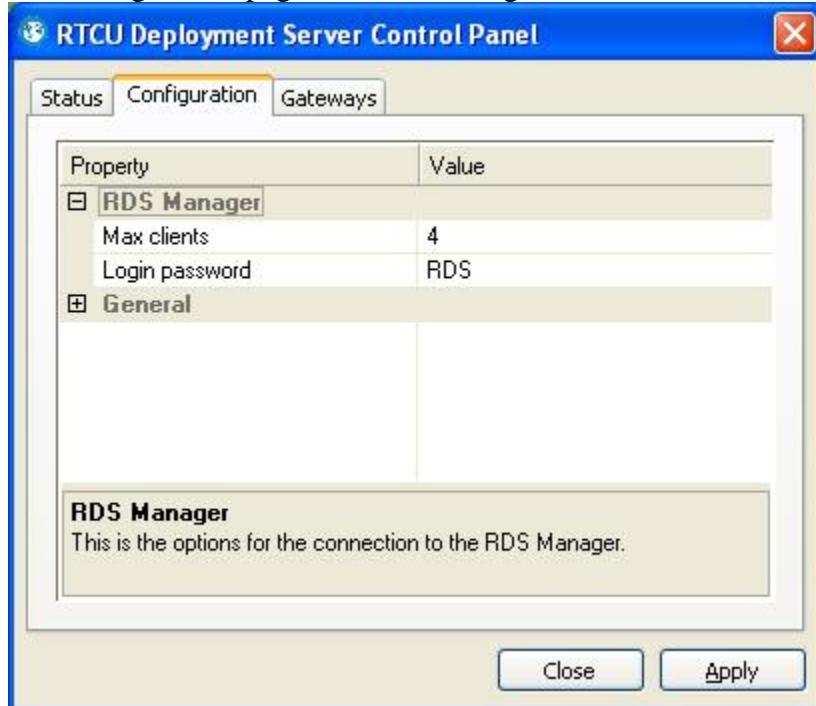
Gateways

This is a list that shows the names and connection status of all the gateways the RDS will connect to. The status can be one of the following:

- | | |
|---------------|--------------------------------------|
| Not connected | RDS is not connected to the gateway. |
| Connected | RDS is connected to the gateway. |
| Unsupported | Gateway is not supported by the RDS. |

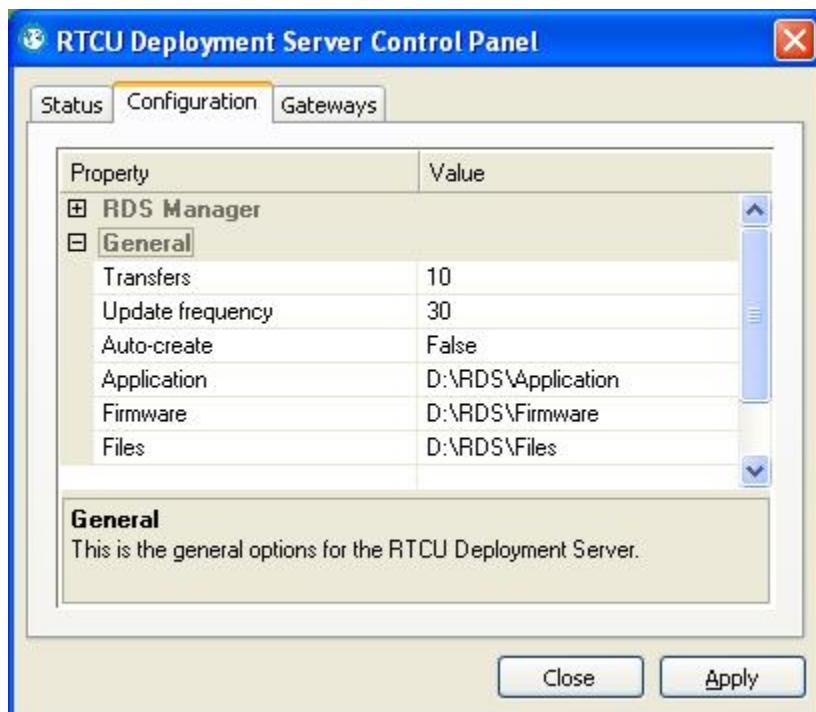
Configuration

The configuration page is used to change the RDS service settings.



The Parameters for RTCU Deployment Server Manager have the Following Meanings

- Maximum clients The maximum number of manager clients or RDS API clients that the RDS will accept simultaneously. RDS supports from 1 to 10 clients. Default is 5.
- Login password Access password for the RDS. This is used by the manager client to connect to the RDS. Note: the access password is case-sensitive.



The Parameters for General have the Following Meanings

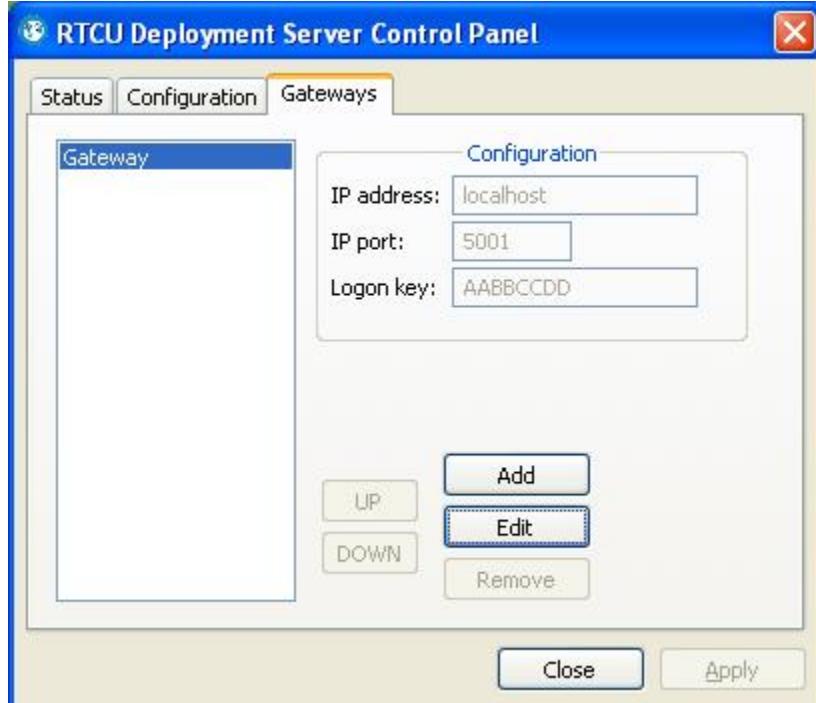
Transfers	This is the number of RTCU units the RDS can update at the same time. The RDS supports from 1 to 200 transfers. Default is 10.
Update frequency	The update frequency in minutes when the RDS will automatically update all units that is not up to date. An update will also automatically be initiated at boot-up time of a unit. The RDS support from 5 to 1440 minutes. Default is 30 minutes.
Auto-create Application	This enables/disables auto-creation of units when they connect for the first time. This is the directory where the RDS expects the application files to be located. Only the application files found here are presented to the manager client when working with profiles. Please note that all subdirectories will be included when searching for application files.
Firmware	This is the directory where the RDS expects the firmware files to be located. Only the firmware files found here are presented to the manager client when working with profiles. Please note that all subdirectories will be included when searching for firmware files.
Files	This is the directory where the RDS expects generic files to be located. Only the files found here are presented to the manager client when working with profiles. Only files that are in the 8.3 format will be accepted. Please note that all subdirectories will be included when searching for files.

Press the “Apply” button to use the new configuration.

Please note that the RDS must be restarted after the configuration has been changed.

Gateways

The gateways page is used to manage which gateways the RDS will connect to.



On the left side of the page is a list of the gateways the RDS will connect to.

The configuration group shows the information of the selected gateway.

IP address IP address of the gateway.

IP port IP port of the gateway.

Logon key Access key for the gateway.

The RDS will only listen for manager clients connecting on the first gateway of the list.

Pressing the ‘Add’ button will make the “Add Gateway” dialog appear.



Name The name of the gateway.

IP address IP address of the gateway.

IP port IP port of the gateway.

Logon key Access key for the gateway.

The text area just above the buttons will show any errors in the configuration.

Pressing the ‘Edit’ button will make the “Edit Gateway” dialog appear.



Name The name of the gateway.

IP address IP address of the gateway.

IP port IP port of the gateway.

Logon key Access key for the gateway.

The text area just above the buttons will show any errors in the configuration.

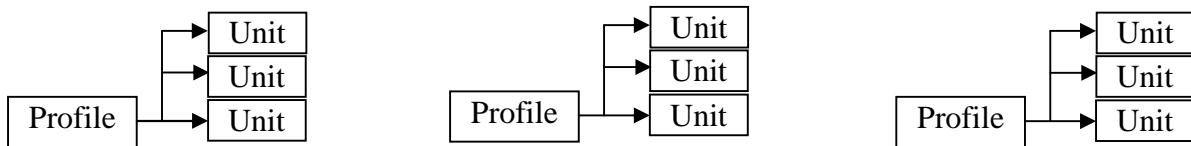
Pressing the ‘Remove’ button will remove the selected gateway.



Pressing the “Up” and “Down” buttons will move the selected gateway one position up or down depending on the button pressed.

Units and Profiles

A profile is a group of units that share characteristics - that is RTCU type, firmware version, and application. When a unit connects, the RDS compares its characteristics with the profile the unit belongs to, and if they are not identical, a new firmware or application is transferred to the RTCU unit.



An example of this could be if one takes a theoretical company that logs metrological information and has weather stations scattered around the country - each with an RTCU AX9 unit. In addition to this, they have two employees that service the weather stations - each of them have an RTCU MX2i unit installed in the service vehicle.

In this case, two profiles are required - one for the AX9 and one for the MX2i units.

Upgrade Strategy

To determine if a firmware has to be transferred to the RTCU unit, the RDS compares the firmware version in the profile with the version in the RTCU unit. If the version numbers are different, the RDS starts to transfer the firmware.

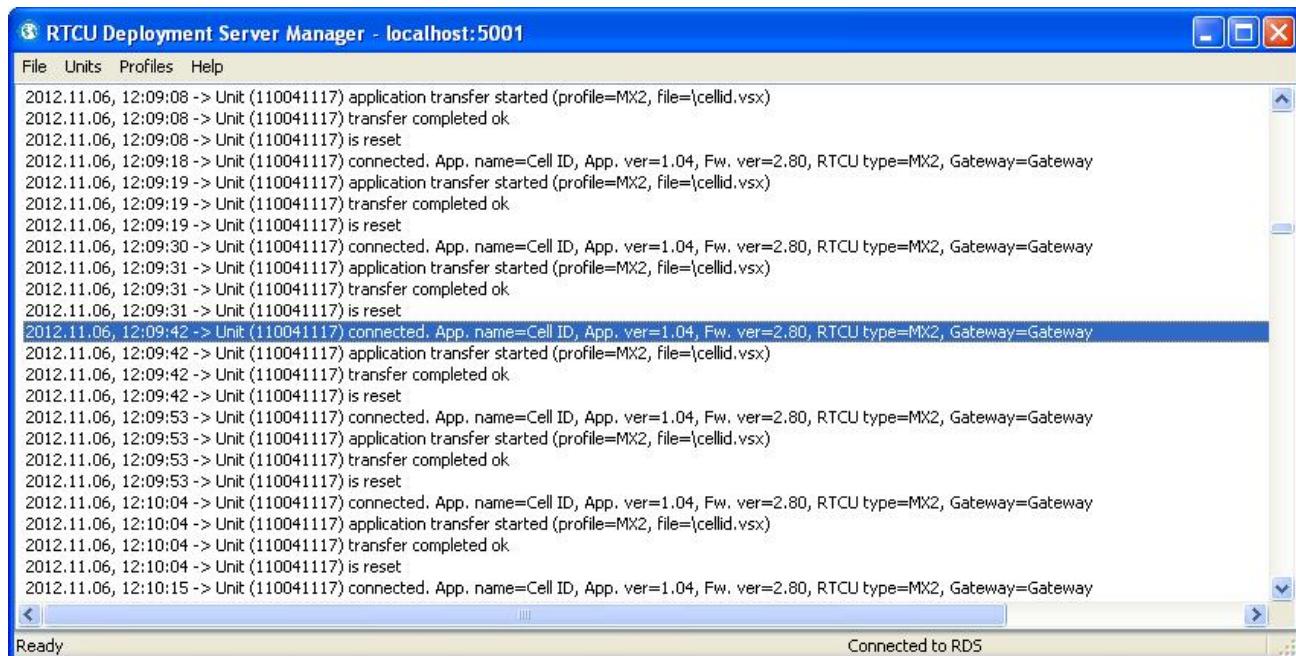
To determine if an application has to be transferred to the RTCU unit, the RDS compares first the application name and then the application version. If either of these (name or version) are not identical, the RDS starts to transfer the application.

As there is no information about the generic file from the RTCU unit, the RDS will try to transfer the file each time the profile is edited. When the RDS starts the transfer, it checks whether the file is already present on the RTCU unit. If the file is present, the transfer is stopped - otherwise the transfer will continue.

RTCU Deployment Server Manager

The RTCU Deployment Server Manager is used for monitoring and maintenance of the RTCU Deployment Server.

When the manager is opened, the main window can be seen:

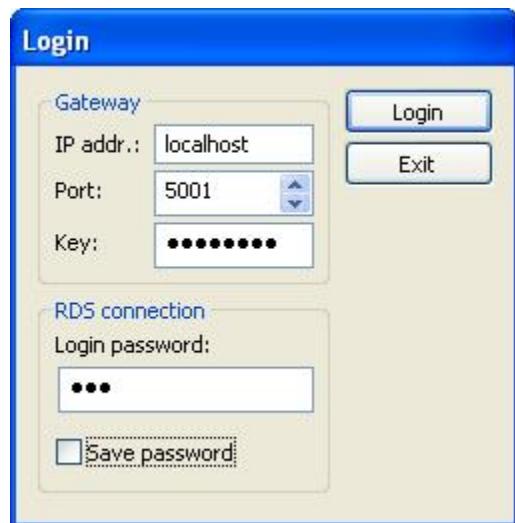


The connection status pane (the bottom line to the right) has the following meanings:

Not connected	Not connected to gateway or RDS.
Connecting to gateway...	Contacting and logging on to gateway.
Connected to gateway	Connected to gateway but not to the RDS.
Connecting to RDS...	Logging on to RDS.
Connected to RDS	Connected to RDS and ready.
RDS not found!	RDS is not connected to the gateway.
Wait... Another client is already connected to RDS.	RDS is busy with another manager client. You may consider increasing the number of allowed clients.
Incorrect RDS login password!	RDS rejected the login password.
RDS server # is not supported!	The version of the RDS is not supported by the manager client.

Connect to the RTCU Deployment Server

To connect the manager client to the RDS, open the file menu and select “Connect”.



Type in the gateway parameters and the RDS login password.

Press the “Login” button.

The manager client will now try to connect to the RDS.

Gateway

IP address	IP address of the gateway.
Port	Port of the gateway.
Key	Access key for the gateway.

RDS Connection

Login Password	The password used to log in to the RDS. Note: the password is case-sensitive.
Save Password	When this option is selected, the password is saved between sessions, and the manager client will try to connect automatically.

Working with Profiles

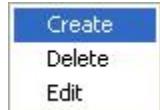
This window shows the current list of profiles.

Profile	App. file	App. name	App. ver.	Fw. file	Fw. target	Fw. ver.	File	Start time	Stop time
► Service Tracker	tracker.vsx	tracker	1.10	Firmware_MX2_280.bin	MX2	2.80		20:00	6:00
● Water Station	water.vsx	Water	1.15	Firmware_DX4_210.bin	DX4	2.10			
Weather Station	station.vsx	Station	1.10	Firmware_AX9_215.bin	AX9	2.15	program.cfg		

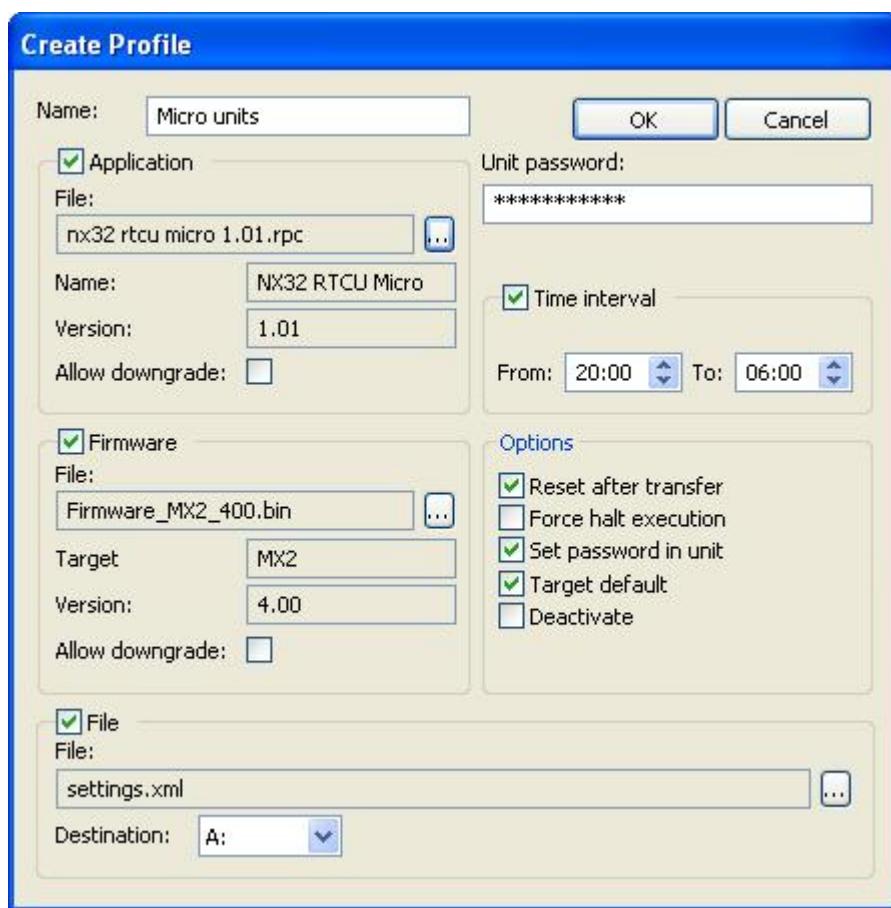
[Close](#)

When a new version of the firmware or application is available, edit the profile and those units that are affected by the change start the transfer.

To work with the profiles, right-click in the profile window and this pop-up menu shows up:



A profile can only be deleted if no units are using it.
 The profile dialog is used to create and edit profiles.

**Name**

This is the name of the profile.

Application**File**

File name of the application. To select a new application file, press the “Browse” button.

Please note: when browsing for application files, the entire directory tree is parsed - including subdirectories.

Name

Name of the application. This is updated from the application file if possible. If the application name is not included in the file, it must be entered manually.

Version

Version of the application. This is updated from the application file if possible. If the application version is not included in the file, it must be entered manually.

Allow downgrade

If this option is set, downgrading the application is allowed.

Firmware**File**

File name of the firmware. To select a new firmware, press the “Browse” button.

Please note: when browsing for firmware files, the entire directory tree is

	parsed - including subdirectories
Target	The type of RTCU unit the firmware is made for. This is updated from the firmware file.
Version	Version of the firmware. This is updated from the firmware file.
Allow downgrade	If this option is set, downgrading the firmware is allowed.

File

File	File name of the generic file. To select a new file, press the “Browse” button. Please note: when browsing for files, the entire directory tree is parsed - including subdirectories
Destination	The media in the RTCU unit where the file is transferred to. The file will be placed on the selected media in the \RDS subdirectory.

Unit Password

If a password is entered here, it is used to connect to the RTCU units that use this profile. If the password in the RTCU unit is not the same as the one entered here, the password must either be changed in the RTCU unit or set in the unit information (see Working with Units) before the unit can be updated.

Time interval

This is what the time interval is.

Options

Reset after transfer	If this option is set, the RDS resets the RTCU unit when an application or firmware transfer has completed. Do not use this option if your application resets the unit when a transfer is completed. Reset after a file transfer will never occur.
Force halt execution	If this option is set, the RDS will halt the execution of the application in the unit before starting a transfer. It is recommended only to use this option if “Reset after Transfer” option is also selected.
Set password in unit	Halt execution before a file transfer will never occur. If this option is set, the RDS sets the password in the RTCU unit to the password entered in “Unit Password”.
Target default	If this option is set, the RDS will use this profile when auto-creating RTCU units with the firmware target.
Deactivate	If this option is set, the RDS does not upgrade the units that use this profile. A red dot is displayed in the profile window to indicate this.

Working with Units

The unit information window shows the information on the units that have been registered.

Unit information							
RTCU unit	Target	Profile	App. name	App. ver.	Fw. ver.	Status	Progress
208024003		Weather Stati...				No information	
109501146	DX4	Water Station	Water	1.15	2.10	Profile inactive	
107171018	MX2	Service Tracker	Tracker	1.10	2.10	Unit up to date (2010.09.21, 09:44:53)	
107171017	MX2	Service Tracker	Tracker	1.10	2.10	Unit inactive	
107171016	MX2	Service Tracker	Tracker	1.09	2.10	Wait for reset	
107171015	MX2	Service Tracker	Tracker	1.10	2.00	Not connected	

- All Profiles - Units: 6

The “Status” column can have the following states:

No information

No information has been received from the RTCU unit yet.

Not connected

RTCU unit is currently not connected to the RDS.

Up-to-date

RTCU unit is up-to-date. The timestamp is the time for the last reset.

Transfer pending

RTCU unit may not be up-to-date so a transfer has been queued. Transfer in progress but suspended as it is outside the allowed time window defined in the profile.

Transfer waiting

RDS is transferring the application to the RTCU unit.

Transferring application

RDS is transferring the firmware to the RTCU unit.

Transferring firmware

The password in the profile or unit is not identical to the password in the RTCU unit.

Wrong Password

Firmware is not targeted for the RTCU unit type.

Incompatible Firmware

The RTCU is not programmable or does not support EIS.

Incompatible application

RDS could not find the application file.

Application file not found

File is not a valid application file.

Application file not valid

RDS could not find the firmware file.

Firmware file not found

File is not a valid firmware file.

Firmware file not valid

Upload has been completed and the RDS is waiting for the RTCU unit to reset.

Wait for reset

The same application or firmware has been transferred to the RTCU unit repeatedly.

Version mismatch

The profile in use has been deactivated.

Profile inactive

The unit has been deactivated.

Unit inactive

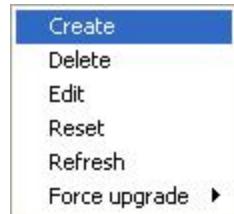
The coloured status indicators to the far left indicate whether the unit is disabled (red), fully updated according to profile (green), or the unit is in the process of being upgraded (yellow).

The progress column shows how much of the current upload has been completed.

The drop-down box in the lower left corner allows filtering profiles, so that only units belonging to a specific profile are shown.

By clicking one of the headers, the units will be sorted either in ascending or descending order by the selected header. Each time the same header is clicked, the sorting toggles between ascending and descending

To work with the units, right-click in the unit information window and this pop-up menu shows up:



“Refresh” is a way to read the unit information from the selected unit(s).

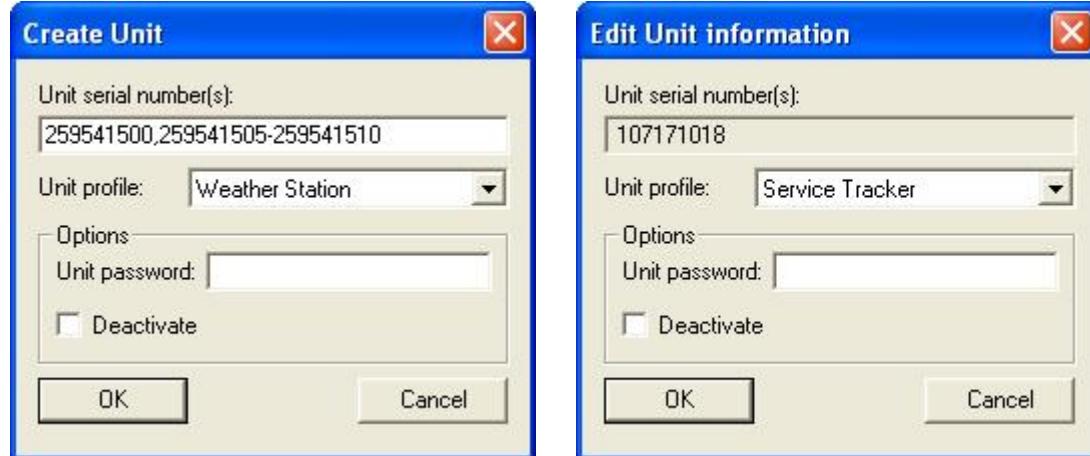
“Force Upgrade” is a way to force the RDS to transfer the application or firmware to a unit or units.



The transfer will not be initiated if the unit or profile is inactive or no firmware, application, or file has yet to be selected.

Once a transfer has been forced, the RDS will finish the transfer even if the RDS is restarted.

When a unit is created or edited, the unit information dialog is used.



Unit Serial Number(s)

When editing a unit, the serial number shown cannot be changed.

When editing more than one unit, “[Various]” will be listed instead of the serial numbers.

When creating units, it is possible to create:

1. Single serial number.
2. Multiple serial numbers. e.g. 750711023,750711025.
3. A range of serial numbers. e.g. 750711025-750711035.
4. Any combination of point 2 and 3. e.g. 750711023,750711025-750711035,750711040-750711049.

Unit Profile

The RDS uses this profile to determine when to update the RTCU unit and what firmware and application to transfer.

When editing more than one unit, an option not to change the profile is also included.

Options

Unit password

The password used to access the RTCU unit. If this is empty, the password of the profile is used instead.

If more than one unit is edited which contain different passwords, [Various] will be listed. If this is not removed, then the password will not be changed in any of the units.

Deactivate

If this option is set, the RDS does not upgrade the unit. A red dot is displayed in the unit information window to indicate this.

When editing more than one unit, this option can also be set to “No Change”.

Import/Export of Units

It is possible to import units from and export units to a comma-delimited file.

The functions are found in the “File” menu.



When importing units, the “Import Units” dialog is used.



File

The name and path to the comma-delimited file to import.

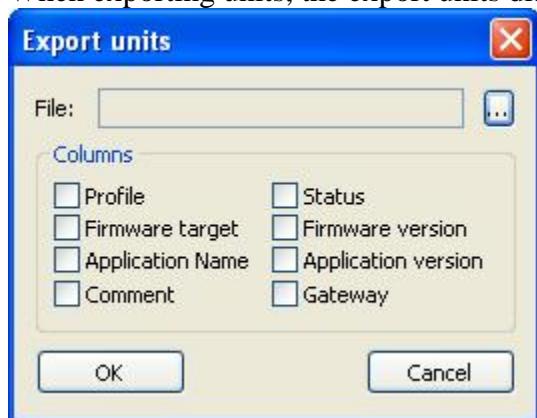
Default Profile

The units in the file that do not have a profile associated with them will use this profile.

Overwrite existing unit

If this option is selected and a unit from the file is already in the RDS the profile it uses will be changed to the one given either in the file or as default.

When exporting units, the export units dialog is used.



File

The name and path of the comma-delimited file to export to.

Profile

This includes the name of the profile the unit uses in the file.

Status	This includes the status of the unit in the file.
Firmware Target	This includes the unit target (type) information in the file.
Firmware Version	This includes the firmware version information of the unit in the file.
Application Name	This includes the application name information of the unit in the file.
Application Version	This includes the application version information of the unit in the file.
Comment	This includes the comment for the unit in the file.
Gateway	This includes the name of the gateway the unit was last connected to in the file.

The comma-delimited file must have the following format:

```
<Unit serial number>[,[<Profile name>][,[<Enable flag>][,<Comment>]]]<NL><CR>
...
<Unit serial number>[,[<Profile name>][,[<Enable flag>][,<Comment>]]]<NL><CR>
```

Example:

```
750711023,"Profile 1"
750711024,"Profile 1","Imported"
750711025
750711026,,disable
750711027,"Profile 2"
750711028,"Profile 2",disable
750711029,"Profile 3"
750711032,"Profile 4"
```

Gateway Connection Status

In the help menu, the ‘Gateway Status’ dialog is found.



The Gateway Connection Status shows the connection status for each configured gateway.

Automatic Upgrading/Programming of Factory-Delivered Unit

The pre-programmed application in an RTCU unit delivered by Logic IO will automatically connect to the GSM network and wait for a configuration SMS that will allow the unit to connect to the gateway. When the unit connects to the gateway, the RDS will upgrade it to the firmware and application specified in the profile. Please note that the PIN code of the SIM card must be disabled.

The configuration SMS message must be set according to the following format:

#KEY=52544355

This command is required because it identifies the SMS message as a genuine configuration SMS. It must be the first command in the SMS.

#GPRS=<apn>,<aut>

This command sets the TCP/IP parameters.

<apn> The APN the unit will use this to connect to the GPRS network.

<aut> The PPP authentication types:

- 0 - None
- 1 - PAP
- 2 - CHAP
- 3 - PAP/CHAP

#GW=<ip>,<port>,<key>

This command sets the Gateway parameters.

<ip> The IP address of the Gateway.

<port> The port the unit will use to connect to the Gateway.

<key> The key (password) the unit should use to connect to the Gateway.

#GWP=<mca>,<msr>,<rto>,<afrq>

This command sets the advanced Gateway parameters. This command is optional.

<mca> Maximum number of connection attempts before GPRS reconnects.

<msr> Maximum number of send-request attempts before send fails.

<rto> Time waiting for response in seconds.

<afrq> Frequency for sending self-transactions in seconds.

#CFM=1

If this command is included, the RTCU will send a confirmation SMS back to confirm that the configuration was received.

For example, an SMS message could look like this:

#KEY=52544355#GPRS=web.orange.dk,3#GW=rtcu.dk,5001,AABBCCDD#GWP=3,3,30,360.